APPENDIX M

DRAFT FISH AND WILDLIFE COORDINATION ACT REPORT

JACKSONVILLE HARBOR NAVIGATION (DEEPENING) STUDY

DUVAL COUNTY, FLORIDA

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DRAFT
FISH AND WILDLIFE COORDINATION ACT REPORT

For

Jacksonville Harbor Navigation Study
Duval County, Florida

U.S. Fish and Wildlife Service
North Florida Field Office

February 2013

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Executive Summary

The U.S. Fish and Wildlife Service (Service) evaluated potential natural resource impacts resulting from a proposed deepening of the Federal navigation channel within Jacksonville Harbor located in the lower St. Johns River. The evaluation included habitats within the Federal navigation channel, field surveys of fish, wildlife, and habitats at nine potential dredged material placement sites, review of the affected riverine and riparian areas and mitigation for expected impacts to jurisdictional wetlands and submerged aquatic vegetation, and additional natural resource recommendations.

The Service recommends that any future consideration given to hardened revetments in the project area be restricted to the refurbishment of existing revetments and that other methods, such as the creation or extension of a salt marsh buffer, be considered in other areas whenever practicable.

The primary proposed placement location for dredged material would be the expanded Ocean Dredge Material Placement Site (ODMDS). With respect to proposed dredged material placement at upland locations, the Service has reviewed information provided with the proposed project as well as other sources, and does not object to dredged material placement at existing and/or proposed dredged material placement sites. Where relevant, surveys for gopher tortoises and wetlands should be conducted and appropriate protection measures or mitigation shall be implemented.

Preliminary modeling and analyses indicates that the proposed deepening would cause salinity levels to increase within the St. Johns River from approximately River Mile 11 (Dames Point Bridge) to at least River Mile 50 (Shands Bridge). Mitigation for impacts to submerged aquatic vegetation and wetlands shall be provided and coordinated with the Service and other regulatory agencies.

Although a small portion of the proposed project will occur within a designated unit (Talbot Island complex - P02) of the Coastal Barrier Resources System, as defined by the Coastal Barrier Resources Act of 1982, as amended (CBRA), the project is exempted from CBRA's section 5 provision, which places a limit on Federal expenditures affecting a system.

The above findings and recommendations have been coordinated with the National Park Service and thus constitute the report of the Department of the Interior.

Table of Contents

Appendices

1.0 Introduction

In 1988 and 1993, the U.S. Fish and Wildlife Service (Service) provided the Jacksonville District, U.S. Army Corps of Engineers (USACE), with Planning Aid Letters (PALs) as part of the continuing Reconnaissance Study phase of a proposed channel deepening of Jacksonville Harbor within the St. Johns River at Jacksonville, Duval County, Florida. The letters were submitted in accordance with, and in partial fulfillment of, the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). The PALs included descriptions and evaluations of ecological resources associated with 25 sites being considered for dredged material placement, and recommendations to mitigate for unavoidable adverse impacts to these resources. Following the first PAL, the USACE removed a number of sites from consideration and added a new oceanfront beach site located immediately south of the mouth of the St. Johns River. The list of sites being considered for dredged material placement was revised to include 8 sites. Descriptions and evaluations of ecological resources associated with the revised list of 8 sites being considered for dredged material placement, and recommendations to mitigate for unavoidable adverse impacts to these resources were subsequently presented in a Fish and Wildlife Coordination Act Report (CAR) with a Endangered Species Act (ESA) Section 7 Coordination component dated July 23, 1997. This 2013 CAR is an update to the 1997 CAR, includes one newly proposed dredged material placement site and was prepared in accordance with and in fulfillment of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) . This 2013 CAR was also prepared following guidance contained in *"Policy and Guidance on Fulfillment of the Fish and Wildlife Coordination Act Responsibilities in the Corps of Engineers Water Resources Development Program,"* dated November 2004.

All figures referenced in this report are presented in Appendix A and all photographs are provided in Appendix B.

2.0 Authorization

The Jacksonville Harbor Navigation Study was originally authorized by a resolution from the Committee on Public Works and Transportation, United States House of Representatives, dated February 5, 1992. The existing General Reevaluation Report 2 was authorized by the House Report 107-681 and the Senate explanatory statement as delineated in the Congressional Record of January 15, 2003. In support of the Jacksonville Harbor Navigation Study, this CAR presents updated evaluations of fish, wildlife, and habitat impacts from the proposed project, and discusses mitigation. The submission of this CAR is in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

3.0 Project Description

The proposed project is located within Jacksonville Harbor, Duval County, Florida in the lower St. Johns River and on certain adjacent upland and ocean beachfront sites. The USACE proposes to improve navigation within the harbor by deepening and widening the existing Federal channel through dredging and blasting. Study objectives include evaluating the benefits of deepening the channel in one-foot increments from the existing 40-foot project depth to 50 feet from the entrance channel to approximately River Mile 13, and widening portions of the channel and creating turning basins.

Harbor deepening impact areas will include the channel deepening, unprotected river shorelines, pipeline crossings and the dredged material placement, and the dredged material placement sites themselves. The work would be performed with various dredges, but the use of explosives would be required for some rock removal.

The following areas are proposed for widening during this project:

- Training Wall Reach Widening Area
- St. Johns Bluff Reach Widening Area

The project also proposes construction of turning basins at the Blount Island Terminal Turning Basin and Brills Cut Turning Basin.

The USACE estimates that this project may generate up to 29,000,000 cubic yards of dredged material consisting of rock and unconsolidated substrate. The primary placement location for dredged material would be the expanded Jacksonville ODMDS. The U.S. Environmental Protection Agency is in the process of completing an Environmental Impact Statement for this site. The expanded ODMDS is not discussed further in this CAR; however, additional information on the ODMDS can be obtained by visiting the EPA website. The following locations are also being considered for dredged material placement and are further evaluated in this CAR:

- Nearshore/Beach Placement Area
- Buck Island
- Proposed Reed Island Placement Site
- Lower Bartram Island
- Middle Bartram Island
- Upper Bartram Island
- Proposed Imeson Industrial Park Placement Site
- Proposed Barnet Bank Trust Company Placement Site
- Proposed Imeson-Cariss Placement Area Placement Site

The proposed use of Buck and Bartram Islands and 24 other upland sites for potential dredged material placement was previously reviewed and described by the Service in Planning Aid Letters contained within two Reconnaissance Reports entitled: Navigation Study for Jacksonville Harbor, Nos. 10208 (December 1988) and 04810 (March 1994). The current report includes a subset of those original sites.

4.0 Description and Discussion of the Effected Environment

The proposed project is located in east central Duval County, Florida, within the city limits of Jacksonville. The project footprint includes approximately the lower 13 miles of the St. Johns River estuary which extends from the river mouth to just west of the Dames Point Bridge. The nine possible dredged material placement sites proposed by the USACE are located within or immediately adjacent to the river, on nearby uplands generally associated with the Dunn, Drummond, and San Carlos Creek drainages as well as the Broward River, and on beachfront south of the river mouth and adjacent to Mayport Naval Station and Kathryn Abbey Hanna County Park. Numbers used to identify the following potential dredged material sites correspond to those used in previous PALs and in the 1997 CAR.

4.1 Dredging Areas

The proposed dredging of the Federal channel extends from the river mouth to just west of the Dame Point Bridge (approximately River Mile 13). This segment includes and/or borders Federal lands (Mayport Naval Station, Timucuan Ecological and Historical Preserve), state and county lands (Nassau River - St. Johns River Marshes State Aquatic Preserve, Huguenot Memorial Park, Helen Cooper Floyd Park), the incorporated city of Mayport, other residential development, small commercial enterprises, and Buck and Bartram Islands, two of the three existing dredged material placement sites being considered for use in the proposed project. It also includes industrial development, commercial and shipping terminals at Blount Island, and an inactive dredged material placement site (Reed Island).

In addition to the river's sublittoral zone, habitats associated with this segment of the river include filled wetlands, uplands created with dredged material, upland bluffs, salt marsh, coastal hammock, beaches, sand dunes, mud and sand flats, and rock jetties. Sand and silt comprise a substantial portion of the benthic sediments within this segment. Given the segment's short flushing time (due to its relative narrowness and proximity to the Atlantic Ocean) and its ecological nourishment from adjacent natural areas, the Service believes that any dredging will have only temporary impacts on the open water and benthic flora and fauna. Any blasting within this segment may have more immediate and long term impacts, such as stunning and killing fish, and converting the benthic community from one associated with consolidated rather than unconsolidated bottom substrate.

The Service believes that an indirect operational effect of the project will be an intensification of wake-induced erosion at Huguenot Memorial Park, Fanning Island, and Fort Caroline National Memorial, and fringing salt marsh along the channel. The National Park Service stated a similar concern in 1993 and additional concern for possible damage to their historic structures from potential blasting. The Service recommends that any future consideration given to hardened revetments in these areas be restricted to the refurbishment of existing revetments and that other methods, such as the creation or extension of a salt marsh buffer, be considered in other areas whenever practicable.

Regarding Federally protected species, the endangered West Indian manatee (*Trichechus manatus latirostris*) occurs within this river segment. This area is also Federally-designated critical habitat for the manatee. The northern right whale (*Eubalaena glacialis*) occurs in nearby nearshore waters and has been documented within the extreme lower part of the St. Johns River. The nearshore waters have been designated as critical habitat for this species. There is also the potential for the endangered green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and Kemp's ridley (*Lepidochelys kempii*) sea turtles and threatened loggerhead sea turtle (*Caretta caretta*) to use this portion of the river estuary. Critical habitat has been proposed for the loggerhead, and a portion of this designation would include an area seaward of the harbor entrance. The endangered wood stork (*Mycteria americana*) and threatened piping plover (*Charadrius melodus*) also occur in this area. Critical habitat for wintering piping plover has been designated just north of the river's mouth. The red knot (*Calidris canutus*) also uses this area and is proposed for listing. The endangered shortnose sturgeon (*Acipenser brevirostrurn*) and Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) have been documented inhabiting the river as well.

4.1.1 Training Wall Reach Widening

The Training Wall Reach Widening area is in the eastern segment of the project area. It is approximately 62 acres in size, and is located at the confluence of Sisters Creek and the Intracoastal Waterway (IWW) with the St. Johns River. The bottom is comprised of rock outcrop and sand substrate, and depths in this area range from six to 60 feet.

This area is within USFWS designated critical habitat for the manatee. Any proposed blasting should follow the cautionary measures outlined in Appendix C "Blasting Specifications." Work done in this area should follow the cautionary measures outlined in Appendix D "Standard Manatee Construction Conditions."

Provided the above listed measures are incorporated within the project scope, the Service does not object to the use of this area.

4.1.2 St. Johns Bluff Reach Widening

The St. Johns Bluff Reach Widening area is in the eastern segment of the project area and is separated into North and South sections on opposite sides of the existing channel. The areas total approximately 62 acres in size and are located at the eastern confluence of the Blount Island Channel and the St. Johns River. The bottom is comprised of a sand substrate and depths range from 12 to 60 feet.

This area is within USFWS designated critical habitat for the manatee. Any proposed blasting should follow the cautionary measures outlined in Appendix C "Blasting Specifications." Work done in this area should follow the cautionary measures outlined in Appendix D "Standard Manatee Construction Conditions."

Provided the above listed measures are incorporated within the project scope, the Service does not object to the use of this area.

4.1.3 Blount Island Terminal Turning Basin

The Blount Island Terminal Turning Basin area is in the eastern segment of the project area. The area is approximately 55 acres in size and is adjacent to Reed Island and Lower Bartram Island. The bottom is comprised of a sand substrate and depths, outside the channel, range from zero to 18 feet.

This area is within USFWS designated critical habitat for the manatee. Any proposed blasting should follow the cautionary measures outlined in Appendix C "Blasting Specifications." Work done in this area should follow the cautionary measures outlined in Appendix D "Standard Manatee Construction Conditions."

Provided the above listed measures are incorporated within the project scope, the Service does not object to the use of this area.

4.1.4 Brills Cut Turning Basin

The Brills Cut Turning Basin is located at the western terminus of the proposed dredging (approximately River Mile 13). The area is approximately 57 acres in size. The bottom is comprised of a sandy substrate.

This area is within USFWS designated critical habitat for the Manatee. Any proposed blasting should follow the cautionary measures outlined in Appendix C "Blasting Specifications." Work done in this area should follow the cautionary measures outlined in Appendix D "Standard Manatee Construction Conditions."

Provided the above listed measures are incorporated within the project scope, the Service does not object to the use of this area.

4.2 Existing/Proposed Dredged Material Placement Sites

Six existing and three proposed dredged material placement sites are being considered for this project. Each site has unique characteristics that must be presented individually. The following is a brief description of each existing/proposed dredged material placement site and a discussion of the effected environment.

4.2.1 Nearshore/Beach Placement Area

The Nearshore/Beach Placement Area (Site 68 in the previous CAR and PALs) stretches approximately 4.5 miles south from the south St. Johns River jetty, through Mayport Naval Station and Kathryn Abby Hanna Park, and ends at the 6th Street Access. The area extends from the beach area offshore approximately 2,500 feet. According to the 1997 CAR, the Nearshore/Beach Placement Area has been renourished since 1993.

An aerial photograph of the Nearshore/Beach Placement Area highlighting site conditions and photograph points is presented as Figure 2 in Appendix A. Site photographs from a September 2011 ground survey are presented in Appendix B.

The majority of this area contains healthy foredunes of appropriate structure, which are primarily vegetated by sea oats (*Uniola paniculata*), sea oxeye (*Borrichia frutescens*), and Beach Morning-glory (*Ipomoea imperati*).

The threatened loggerhead sea turtle annually nests along this stretch of beach. Designation of critical habitat for this species is proposed along and off the coast of the area. Other sea turtles which may nest here include the green and leatherback.

Placement of beach quality dredged material in these areas is not expected to adversely impact the existing dune system and may aid in their renewal and replenishment. Impacts to mammals, shorebirds, crustacea, molluscs, and other invertebrates using the upper beach and littoral zones are expected to be temporary.

Provided dredged material placement is appropriately monitored and nesting sea turtle and migratory bird protection measures are implemented, it is not anticipated that the work will cause an adverse affect. Based on the preceding analysis, the Service does not object to the proposed placement of beach quality dredged material within this project area.

4.2.2 Buck Island

This parcel is an existing 145 acre dredged material placement site owned by the Florida Department of Environmental Protection and leased to the Jacksonville Port Authority (Site 62 in the previous CAR and PALs). It is located on the south bank of the St. Johns River at

approximately River Mile 6. The island is bordered on the west by St. Johns Creek, on the north by the St. Johns River, on the east by Chicopit Bay, and on the south by Colorinda Creek. The majority of the island's interior has been used for dredged material placement. This site is adjacent to the Fort Caroline National Memorial which is part of the National Park Service's Timucuan Ecological and Historic Preserve.

An aerial photograph of Buck Island highlighting site conditions and photograph points is presented as Figure 3 in Appendix A. Site photographs from a September 2011 ground survey are presented in Appendix B.

The soil is classified as Aquic Quartzipsamments, 0 to 2 percent slopes, and is highly disturbed. More recently used areas are primarily bare sand with patchy pioneers, such as goldenrod (*Solidago sp*.), dog fennel (*Anthemis sp.*), broomsedge (*Andropogon virginicus*), and various sedges (*Cyperus sp.*). Older areas, located mostly on the outer edges of the perimeter berm, are more robustly vegetated with wax myrtle (*Myrica cerifera*), cabbage palm (*Sabal palmetto*), and scattered Southern red cedar (*Juniperus silicicola*). Intertidal marsh containing smooth cordgrass (*Spartina alterniflora*) and black needlerush (*Juncus roemerianus*) occurs to the west, south, and east of the island, outside of the project boundary. The invasive exotic salt cedar (*Tamarix sp.)* has also been observed at Buck Island, but this plant has been aggressively controlled by the USACE and Jacksonville Port Authority.

In the past, several species of birds including least terns (*Sternula antillarum*), black-necked stilts (*Himantopus mexicanus*), and killdeer (*Charadrius vociferus*) have nested on Buck Island. The USACE implements measures to protect all nesting species of birds such as nest monitoring and buffer zones (work exclusion zones). Many species of migratory birds have also been observed by USACE loafing or foraging at this site. The piping plover is found on open, sandy beaches and tidal mudflats. Though it is observed on the Atlantic coast of Florida, it is much more common on the Gulf coast. The open, sandy areas of Buck Island do not provide the necessary food sources for the plover. Given the abundance of natural, suitable habitat throughout the nearby Little and Big Talbot Islands, it is not likely that usage of this site would negatively impact the species.

The wood stork may sporadically use the onsite impoundment ponds for foraging. However, Buck Island is bordered on three sides by high quality intertidal marsh which is prime foraging habitat for the wood stork. Due to their large size, nesting is usually found in either substantial shrubs or medium to large trees, neither of which occur within the project boundary.

Though the manatee would not be found within the project boundary, it is possible that they either forage or travel in the shallow waters of the St. Johns River, bordering the northern portion of the island.

As this area is an active dredged material placement site, it is not anticipated that continued usage would constitute a threat to any potential listed species who reside in the vicinity.

The gopher tortoise (*Gopherus polyphemus*), a Federal candidate species for listing under the Endangered Species Act, has been known to occur at Buck Island. It should be noted that while the gopher tortoise is currently listed as a threatened species by the State of Florida, the Service has determined that the species in its eastern range should be Federally listed as threatened and is in the process of identifying critical habitat. The USACE implements protective measures for this species such as buffer zones (work exclusion areas around any tortoise burrow) as well as periodic surveys.

The Service does not object to use of the project site for dredged material placement.

4.2.3 Reed Island

This approximately 61-acre inactive placement site is located on the south shore of the St. Johns River south of Blount Island and east of Bartram Island, adjacent to the Reed Island residential subdivision. A set of electrical transmission lines crosses the island, and the area underneath the lines appears to be periodically mowed and maintained. The parcel has a berm road that circumnavigates the site. Another service road splits the island into two parts: an approximately 13 acre eastern section, and a 48 acre western section. The western section, which is slightly more depressional in nature than the eastern section, was an active dredged material placement site as recently as 1999, according to a review of historical aerials. The eastern section indicated use in late 2002. Reed Island in its current configuration was created as a placement site sometime between 1970 and 1980.

An aerial photograph of Reed Island highlighting site conditions and photograph points is presented as Figure 4 in Appendix A. Site photographs from a September 2011 ground survey are presented in Appendix B.

This parcel is surrounded mainly by salt marsh fringing the St Johns River. The berms and outer slopes are vegetated by shepherd's needle (*Bidens alba*), sand spur (*Cenchrus incertus*), prickly pear (*Oputina humifusa*), and various grasses. The interior of the island inside the old berms contains wetlands consisting mostly of Carolina willow (*Salix caroliniana*), cabbage palm, pokeweed (*Phytolacca sp*.), saltbush, (*Baccharis halimifolia*) and goldenrod. The USACE has coordinated with other agencies regarding control of the invasive exotic salt cedar at this location. Hydrologic indicators such as aufwuchs and stained trunks were observed within these areas indicating periodic inundation. In essence, these areas formed by the abandonment of dredged material pits are created wetlands exhibiting wetland functions.

The wood stork may sporadically use the onsite impoundment ponds for foraging. However, the majority of Reed Island is bordered by high quality intertidal marsh which is prime foraging habitat for the wood stork. Due to their large size, nesting is usually found in either substantial shrubs or medium to large trees, neither of which occur within the project boundary.

Though the West Indian manatee would not be found within the project boundary, it is possible that they either forage or travel in the shallow waters of the St. Johns River, bordering the northern portion of the island.

It is not anticipated that use of the project site for dredged material placement will adversely affect any listed species. Though poor in quality, placement of dredged material will eliminate any beneficial functions that the onsite wetlands provide.

It is likely that the responsible regulatory agencies will view the onsite depressional areas as jurisdictional wetlands, requiring appropriate mitigation for any impacts. Depending on the necessary permits, onsite wetlands should be delineated pursuant to State of Florida F.A.C. 62-340, and the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual. The quality of the onsite wetlands and subsequent mitigation should be addressed using the Uniform Mitigation Assessment Methodology (UMAM).

Given that appropriate wetland mitigation measures are performed for any proposed impacts, the Service does not object to use of the project site for dredged material placement.

4.2.4 Lower (East) Bartram Island

Bartram Island (Site 52 in the previous CAR and PALs), formerly known as Quarantine Island, is approximately 4 miles long and varies in width from less than a quarter mile to about one-half mile. It is located in the St. Johns River beginning at around River Mile 10 near the western-most tip of Blount Island and extends along the river's contour to just beyond the mouth of Dunn Creek. Bartram Island appears on survey maps of the Jacksonville Harbor area as early as 1895, and is apparently a result of dredged material deposition. Bartram Island is owned by the Jacksonville Port Authority (JPA) and is an active dredged material placement site.

An aerial photograph of Lower Bartram Island highlighting site conditions and photograph points is presented as Figure 5 in Appendix A. Site photographs from a September 2011 ground survey are presented in Appendix B.

Lower Bartram Island is approximately 89 acres in size and consists of a large containment area divided by one service road, with the eastern two thirds being a higher, dry area, and the western third being lower and depressional in some places. Construction activities periodically occur within Cells F and G including dike raising.

The Aquic Quartzipsamments soils associated with the site are indicative of its past and current use as a placement site for dredged river material. A broad marsh, interspersed with higher, shrubby islands occurs along the perimeter of most of Lower Bartram Island. Vegetation associated with the high marsh includes glasswort (*Salicornia virginica*), saltwort (*Batis maritima*), salt grass (*Distichlis spicata*), salt marsh bulrush (*Scirpus robustus*), and various shrubs including sea oxeye, saltbush, and marsh elder (*Iva frutescens*). The lower, more inundated areas are characterized by smooth cordgrass and black needlerush. The small islands

are generally vegetated with cabbage palm, Southern red cedar, marsh elder, and saltbush. The depressional areas in the western section are primarily vegetated with saltbush and various grasses. The invasive exotic salt cedar has also been observed at Bartram Island, but this plant has been aggressively controlled by the USACE and Jacksonville Port Authority.

As a result of the continued dredged material placement, much of the remainder of the island has been occupied by successional upland plants. Grasses and other herbaceous ground cover are prominent on the dike slopes and are also sparsely distributed within the large eastern inactive dredged material area.

The shrub and tree vegetation surrounding the containment area results in Lower Bartram Island being more of a benefit to wildlife and resident and migratory birds. No wading bird rookeries were observed while onsite. Tracks from the wild boar (*Sus scrofa*), northern raccoon (*Procyon lotor*), and either coyote (*Canis latrans*) or feral dog (*Canis lupus familiaris*) were observed.

It is likely that the responsible regulatory agencies will view the onsite depressional areas as jurisdictional wetlands, requiring appropriate mitigation for any impacts. Depending on the necessary permits, onsite wetlands should be delineated pursuant to State of Florida F.A.C. 62-340, and the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual. The quality of the onsite wetlands and subsequent mitigation should be addressed using UMAM.

Given that appropriate wetland mitigation measures are performed for any proposed impacts, the Service does not object to use of the project site for dredged material placement.

The Service does not object to the option of using and vertically expanding the islands' impoundments to accommodate dredged material from the proposed project because this action avoids wetland loss and minimizes impacts to fish and wildlife resources currently using the impoundment.

4.2.5 Middle Bartram Island

Bartram Island (Site 52 in the previous CAR and PALs), formerly known as Quarantine Island, is approximately 4 miles long and varies in width from less than a quarter mile to about one-half mile. It is located in the St. Johns River beginning at around River Mile 10 near the western-most tip of Blount Island and extends along the river's contour to just beyond the mouth of Dunn Creek. Bartram Island appears on survey maps of the Jacksonville Harbor area as early as 1895, and is apparently a result of dredged material deposition. Middle Bartram Island is owned by the Jacksonville Port Authority (JPA) and is an active dredged material placement site. A single, 47 acre shallow containment area (Cell C), is located here.

An aerial photograph of Middle Bartram Island highlighting site conditions and photograph points is presented as Figure 6 in Appendix A. Site photographs from a September 2011 ground survey are presented in Appendix B.

The Aquic Quartzipsamments soils associated with the site are indicative of its past and current use as a placement site for dredged river material. A generally narrow, fringing salt marsh occurs along the perimeter of most of Middle Bartram Island. Vegetation associated with high marsh included glasswort, saltwort, salt grass, salt marsh bulrush, and various shrubs including sea ox-eye, saltbush, and marsh elder. The lower, more inundated areas are characterized by smooth cordgrass and black needle rush. As a result of the continued dredged material placement, much of the island is sparsely occupied by successional plants. Grasses and other herbaceous ground cover were prominent on the dike slopes and were also sporadically distributed within inactive dredged material areas. The invasive exotic salt cedar has also been observed at Bartram Island, but this plant has been aggressively controlled by the USACE and Jacksonville Port Authority.

No wading bird rookeries were observed while onsite. Tracks from the wild boar and northern raccoon were observed.

The Service does not object to the option of using and vertically expanding the islands' impoundments to accommodate dredged material from the proposed project because this action avoids wetland loss and minimizes impacts to fish and wildlife resources currently using the impoundment.

The Service does not object to use of the project site for dredged material placement.

4.2.6 Upper (West) Bartram Island

Bartram Island (Site 52 in the previous CAR and PALs), formerly known as Quarantine Island, is approximately 4 miles long and varies in width from less than a quarter mile to about one-half mile. It is located in the St. Johns River beginning at around River Mile 10 near the western-most tip of Blount Island and extends along the river's contour to just beyond the mouth of Dunn Creek. Upper Bartram Island is owned by the Jacksonville Port Authority (JPA) and is an active dredged material placement site. It consists of a 279 acre shallow containment area divided into two parts by a service road (Cells B and A).

Bartram Island appears on survey maps of the Jacksonville Harbor area as early as 1895, and is apparently a result of dredged material deposition. Construction activities periodically occur within Cells B and A including dike raising. The placement of dredged material over successive years has extended Bartram Island to the current configuration.

An aerial photograph of Upper Bartram Island highlighting site conditions and photograph points is presented as Figure 7 in Appendix A. Site photographs from a September 2011 ground survey are presented in Appendix B.

The Aquic Quartzipsamments soils associated with the site are indicative of its past and current use as a placement site for dredged river dredged material. A generally narrow, fringing salt marsh occurs along the perimeter of most of Upper Bartram Island. Vegetation associated with

high marsh included glasswort, saltwort, salt grass, salt marsh bulrush and various shrubs including sea ox-eye, saltbush, and marsh elder. The lower, more inundated areas are characterized by smooth cordgrass and black needle rush. As a result of the continued dredge material placement, much of the island is unvegetated. Grasses and other herbaceous ground cover were prominent on the dike slopes and were also sparsely distributed within the few inactive dredged material areas. Earth moving vehicles and other equipment were present during the survey, but no activity was occurring at the time. The invasive exotic salt cedar has also been observed at Bartram Island, but this plant has been aggressively controlled by the USACE and Jacksonville Port Authority.

Four American bald eagles (*Haliaeetus leucocephalus*) were observed soaring above the river north of the island, continuing over the island, and eventually moving offsite. It is possible that the island is one of many foraging areas for this group of eagles. Least terns regularly nest at this location. The USACE implements measures to protect all nesting bird species such as nest monitoring and buffer zones (work exclusion zones).

The Service does not object to the option of using and vertically expanding the islands' impoundments to accommodate dredged material from the proposed project because this action avoids wetland loss and minimizes impacts to fish and wildlife resources currently using the impoundment.

The Service does not object to use of the project site for dredged material placement.

4.2.7 Proposed Imeson Industrial Park Placement Site

This parcel (Site 13C in the previous CAR and PALs) is an approximately 183 acre tract located adjacent to the Barnett Bank Trust site within the Broward and Trout River peninsula. It lies roughly north and west of Heckscher Drive and east of the developed portion of Imeson Industrial Park. Sand mining began on the property in the 1960's and by 1980 most of the parcel had been cleared. The western and southern third of the parcel is saucer shaped with gently to moderately sloped ridges and isolated knolls interspersed with dry depressions; most of these features appear to have been created by mining operations.

Aerial photographs of the Proposed Imeson Industrial Park Placement Site highlighting site conditions, soils, and photograph points are presented as Figures 9 and 10 in Appendix A. Site photographs from a September 2011 ground survey are presented in Appendix B.

The original soil associated with the site was Kershaw-Ortega fine sand, however sand mining has destroyed all but about five percent of the native sandhill community associated with this excessively well drained soil. The majority of the site is now classified as Pits. Approximately one third of the western section is mapped by the USDA-NRCS as Penney fine sand, but this area is very similar to the remainder of the site in that it has been previously mined.

The western and southern portion is primarily vegetated with a ground cover consisting of pioneer grasses and early successional herbaceous plants, including partridge pea (*Cassia chamaecrista*), sandspur and ragweed (*Ambrosia artemisiifolia*). Gopher tortoise habitat and burrows were observed in this area in the past.

The eastern two thirds of the parcel have been recently planted with longleaf pine seedlings. In addition, there is a very sparse canopy of young longleaf pines between 5 and 25 feet in height. Groundcover is predominated by wiregrass (*Aristida stricta*), prickly pear, gopher apple (*Licania michauxii*), and goldenrod.

Several active gopher tortoise (*Gopherus polyphemus*) burrows were observed in the eastern two thirds of the project site. The abundance of food and open space for foraging is apparently enough to support their survival. Burrows of several different sizes were observed, indicating a population that is varied in age and size, suggesting that current conditions are sufficient to support a successfully reproducing population.

It should be noted that while the gopher tortoise is currently listed as a threatened species by the State of Florida, the Service has determined that the species in its eastern range should be Federally listed as threatened and is in the process of identifying critical habitat. Use of the site for dredged material placement would adversely impact the gopher tortoise from excavating and filling activities, either entombing them in their burrows or removing the soil layers suitable for burrowing activity. Due to the presence of appropriate soils, the type of habitat, and the observation of active burrows, it is recommended that a gopher tortoise burrow survey be completed prior to any additional consideration of impacts to this property.

Based on previous impacts to the property, the Service does not object to the use of the parcel as described above for dredged material placement with the condition that a gopher tortoise burrow survey be conducted on the entire project site to determine the presence or absence of gopher tortoises and their commensals in this area. Relocation of tortoises to an approved recipient site is also recommended.

4.2.8 Proposed Barnett Bank Trust Company Placement Site

This parcel (Site 13D in the previous CAR and PALs) is an approximately 122-acre tract located adjacent to and west of the Broward River and north of the Atlantic Coast Line railroad tracks. Its eastern and southern boundaries are defined by the river and railroad tracks, respectively; its northern boundary is the Cedar Bay Road sewage treatment plant and access road, while its western limits adjoin the Imeson Industrial proposed placement site.

Aerial photographs of the Proposed Barnett Bank Trust Company Placement Site highlighting site conditions, soils, and photograph points are presented as Figures 11 and 12 in Appendix A. Site photographs from a September 2011 ground survey are presented in Appendix B.

The majority of the site is underlain by Penney Fine Sand, which generally supports longleaf pine-turkey oak vegetative habitats. The Penney series is classified as an excessively well drained soil. An area in the southeastern portion of the site contains Pottsburg Fine Sand, and is consistent with a slightly lower elevation than the majority of the site. Another small area in the northeast portion is characterized by Blanton fine sand, and is indicative of a small river bluff. These two soils are well drained. The site also contains the soil type Pits, due to the sand mining that occurs on the project site and the adjacent Imeson Industrial site.

A mesic hardwood hammock occurs along the border of the river at the lower elevations. Hammock width ranges from about 150 to 800 feet, with the older growth closest to the river. The canopy consists of live oak (*Quercus virginiana*), laurel oak (*Quercus hemisphaerica*), southern magnolia (*Magnolia grandifolia*), and pignut hickory (*Carya glabra*); the understory includes black cherry (*Prunus serotina*), dogwood (*Cornus florida*), redbud (*Cercis canadensis*), witchhazel (Hamamelis *virginiana*), and persimmon (*Diospyros virginia*). The shrub layer includes wax myrtle, beauty berry (*CaIlicarpa americana*) and blueberries (*Vaccinium* spp.). Some small, narrow patches of fringing salt marsh occur along the hammock's border with the Broward River.

The western portion of the site consists of a recently timbered longleaf pine-turkey oak forest. The canopy contains a very sparse population of young longleaf pine (*Pinus palustris*), with many young turkey oaks (*Quercus laevis*) creating a shrub layer. Other very young hardwoods include post oak (*Quercus stellata*), bluejack oak (*Quercus incana*), sassafras (*Sassafras albidurn*), and persimmon. Other shrubs and ground cover includes blueberry, saw palmetto (*Serenoa repens*), chinquapin (*Castanea sp*.), wiregrass, and gopher apple.

A review of aerial photos indicates that the western two thirds of the site were timbered sometime between April 2010 and June 2011. Thick underbrush and timbering debris prevented the observation of any active or inactive gopher tortoise burrows; however, several active burrows of varying size were observed immediately to the west of the project site, outside of the timbered area. Previous investigators have observed gopher tortoise habitat and active burrows within the site, prior to the recent timbering. In 1997, the USFWS stated:

"Several active gopher tortoise burrows of different sizes, suggesting one or more reproducing populations, were observed along the roads and other places where small openings occurred within the sandhill's predominant oak canopy."

It should be noted that while the gopher tortoise is currently listed as a threatened species by the State of Florida, the Service has determined that the species in its eastern range should be Federally listed as threatened and is in the process of identifying critical habitat. Use of the site for dredged material placement would adversely impact the gopher tortoise from excavating and filling activities, either entombing them in their burrows or removing the soil layers suitable for burrowing activity. Due to the presence of appropriate soils, the type of habitat, and past observation of active burrows, it is recommended that a gopher tortoise burrow survey be

completed prior to any additional consideration of impacts to this property. Project impacts to the gopher tortoise would first have to be coordinated with the Florida Fish and Wildlife Conservation Commission.

The site's extensive forested border with the Broward River provides an edge supplying roosts for bald eagles (*Haliaeetus leucocephalus*) and wading birds, as well as foraging and nesting habitat for other resident and migratory birds.

Based on its ecological attributes, the Service recommends that the mesic hardwood hammock be conserved and incorporated within the site's buffer zone. With this condition in mind, the Service does not object to using this site for dredged material placement.

4.2.9 Proposed Imeson-Cariss Placement Area Placement Site

This parcel (Site 13E in the previous CAR and PALs) is an approximately 228 acre tract located south and west of Cedar Bay Road near the Broward River and at the northeast corner of the Broward and Trout River peninsula. Its western border extends from Cedar Bay Road south to the Imeson Industrial proposed placement site and abuts development within the Imeson Industrial Park. The Cedar Bay water treatment plant defines a portion of the parcel's southern boundary, while its eastern boundary roughly parallels Cedar Bay Road and lies west of private residences. Onsite sand mining operations were greatly expanded in 2003 and are characteristic of the majority of the site.

Aerial photographs of the Proposed Imeson-Cariss Placement Site highlighting site conditions, soils, and photograph points are presented as Figures 13 and 14 in Appendix A. Site photographs from a September 2011 ground survey are presented in Appendix B.

The site is predominately underlain by Penney fine sand, which supports the typical sandhill ridge community observed at other excessively drained sites throughout the Broward peninsula. The somewhat poorly drained Pottsburg fine sand and pockets of Evergreen-Wesconnett complex, depressional, are found through the north-central and northwestern portions of the site. A combination of Urban Land, Urban land-Ortega-Kershaw complex, 0 to 8 percent slopes, and Pits are found within the southern portion of the property, which is typified by old sand mines and the infrastructure remains of the Imeson Airport.

According to previous investigators, the more poorly drained soils are associated with the sites' open water and wetland habitats that existed prior to expansion of mining operations in 2003. One wetland remains in the undeveloped, northeastern portion of the site. It is characterized by a fringe of laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), sweet bay (*Magnolia virginiana*), pond pine (*Pinus serotina*) and saw palmetto, with an open area in the center populated by grasses. The remainder of the undeveloped northeastern portion of the property is an undulating, upland mix of mesic hammock and sandhill ridge. Fire suppression has prevented the natural maintenance of the sandhill community; therefore the undergrowth is very thick.

The balance of the property consists of highly disturbed uplands and two large borrow pits, one of which forms a portion of the northern boundary. Many areas are bare sand, while others exhibit early vegetative succession and are dominated by grasses and herbaceous forbs.

According to a Service site visit in 1996, gopher tortoise habitat and burrows were observed on this site. The investigators noted that the range of burrow sizes suggested that these sections supported one or more self-sustaining populations. During the current investigation, no gopher tortoises or burrows were observed, likely due to the elimination of habitat from expanded sand mining operations.

It should be noted that while the gopher tortoise is currently listed as a threatened species by the State of Florida, the Service has determined that the species in its eastern range should be Federally listed as threatened and is in the process of identifying critical habitat. Placement of dredged material placement would eliminate any reasonable possibility that a gopher tortoise population could re-establish in this area. Dredged material placement will also negate the benefits of a functioning onsite wetland.

The wetland area should be avoided, if at all possible. If not, appropriate mitigation will have to be provided to offset the impacts. Depending on the necessary permits, onsite wetlands and open water habitats should be delineated pursuant to State of Florida F.A.C. 62-340, and the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual. The quality of the onsite wetlands and subsequent mitigation should be addressed using UMAM. A gopher tortoise burrow survey should be performed prior to consideration of this site for impacts.

Given the above listed conditions, the Service does not object to the use of this site for dredged material disposal.

5.0 Mitigation for Salinity Impacts

Preliminary modeling and analyses indicates that the proposed deepening would cause salinity levels to increase within the St. Johns River from approximately River Mile 11 (Dames Point Bridge) to at least River Mile 50 (Shands Bridge). Mitigation for salinity impacts to submerged aquatic vegetation and wetlands shall be coordinated with the Service and other regulatory agencies.

6.0 No Action Alternative

If no action is taken to deepen the Jacksonville Harbor, the most probable future condition is continued utilization of the harbor under present conditions. Deep draft vessel traffic in the harbor is likely to continue to increase with accompanying higher levels of congestion, resulting in longer and more frequent delays in moving vessels in and out of the harbor. The ability of the Jacksonville Harbor to be used by the larger ships now able to pass through the Panama Canal

will remain very limited if the harbor is not deepened. This in turn would have negative economic effects on the shipping industry and the Jacksonville area in general.

7.0 Summary of Fish and Wildlife Service Position

Further consultation with the Service to review project specifics will be required prior to installing dredge equipment in the St. Johns River. On the condition that the limitations the USFWS expressed in this report and appropriate mitigation and avoidance measures discussed in this report and additional measures given during further consultation are followed, the Service does not object to deepening of the harbor and placement of dredged material in the locations discussed in this CAR.

8.0 Coastal Barrier Resource Act

The Coastal Barrier Resources Act (CBRA), first enacted in 1982 (16 U.S.C. 3502 et seq.), was reauthorized and amended by the Coastal Barrier Improvement Act (CD3A) of 1990 (16 U.S.C. 3501). Its purpose, as stated in section 2(b), is "...to minimize the loss of human life, wasteful expenditure of Federal revenues, and the damage to fish, wildlife, and other natural resources associated with the coastal barriers..." CBRA established the Coastal Barrier Resources System, (CBRS) a mapped series of undeveloped coastal barriers on the Atlantic and Gulf coasts, including the Great Lakes Region, Virgin Islands, and Puerto Rico. Areas within the system are designated as either "units" or "otherwise protected areas" (OPA's). Section 5(a) prohibits all new Federal expenditures and financial assistance within unit boundaries, with some exceptions as determined through a process of consultation.

Consultation

Section 6(a) of CBRA requires that the appropriate Federal officer consult with the Secretary of the Interior (Secretary) prior to making commitments on Federal expenditures or financial assistance within CBRA units. The Secretary has delegated his consultation responsibility to the Service. The Service, therefore, offers the following comments on the proposed deepening of the Jacksonville Harbor ship channels within a portion of the Talbot Island complex (P02), a designated CBRA unit, pursuant to Section 6.

The Jacksonville Harbor Deepening Project is located on Florida's northeast coast along the lowest 13 miles of the St. Johns River and its tributaries. That portion of the project, which covers from the river's mouth inland three miles, is also within a portion of the P02 unit of the CBRS's Talbot Island complex. The project action planned to occur within this unit is the dredging of the Federal ship channel.

Habitats found within the P02 unit of the Talbot Island complex include open water and benthos associated with marine and estuarine environments, salt marsh, tidal mud and sand flats, beaches, rock jetties, coastal dunes, and some maritime hardwood hammock. These habitats not only support diverse communities of both resident plants and animals, but are also important for migratory birds, including waterfowl and neo-tropical migrants. The extensive coastal wetlands support both shellfish and the adults and juveniles of many commercially valuable finfish.

Section 6(a)(2) of CBRA provides an exception to Section 5, Limitations on Federal Expenditures Affecting the System, if the expenditure is for "the maintenance or construction of improvements of existing Federal navigation channels (including the Intracoastal Waterway) and related structures (such as jetties), including the placement of dredge material related to such maintenance or construction." Based on the preceding review, the Service concludes that the proposed harbor deepening project of the ship channel qualifies under this exception.

9.0 References

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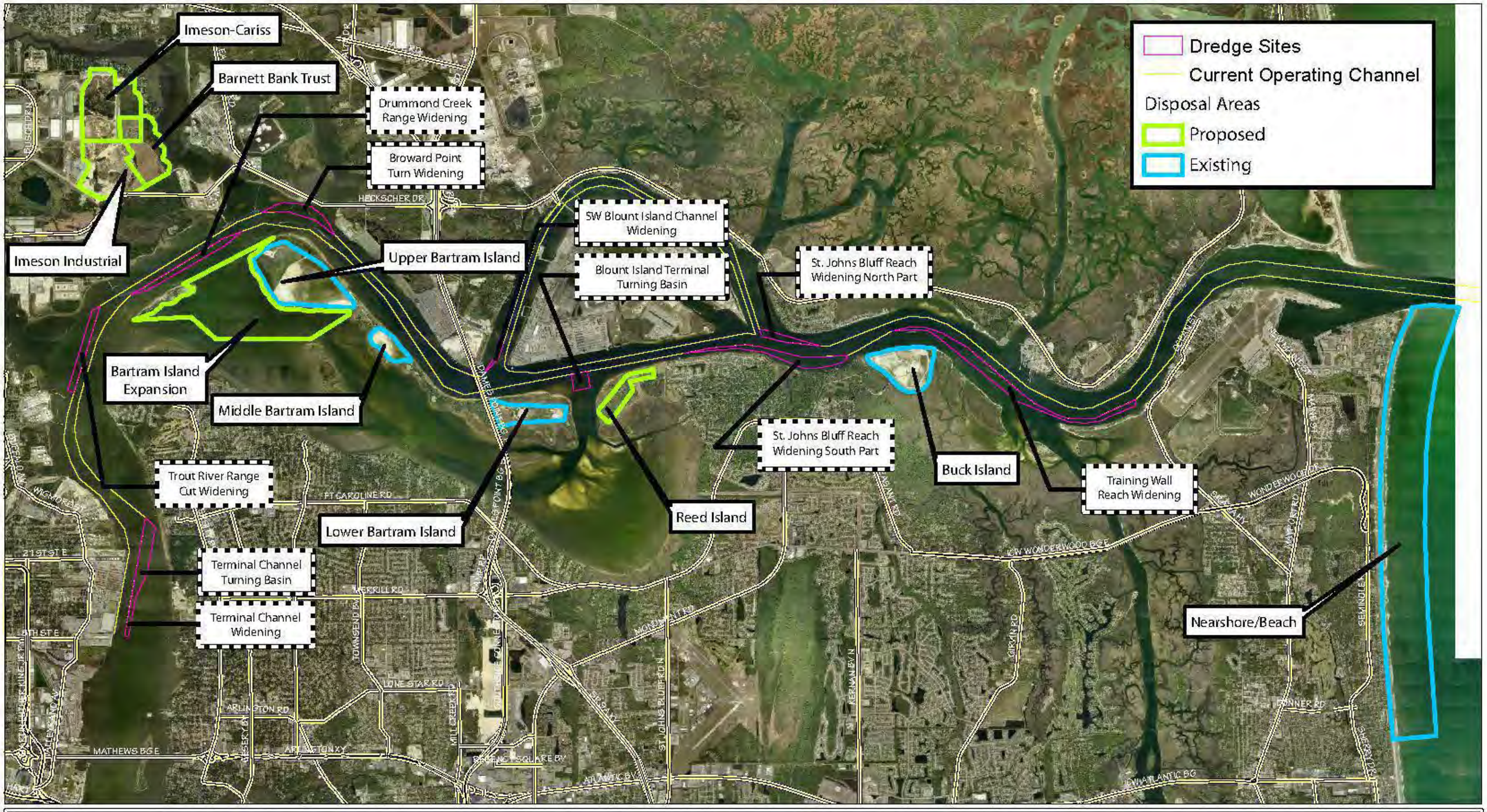
Appendix A

Figures

List of Figures



Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Project Site Location
Figure 1

2011 Aerial Photograph, Duval County, Florida

N
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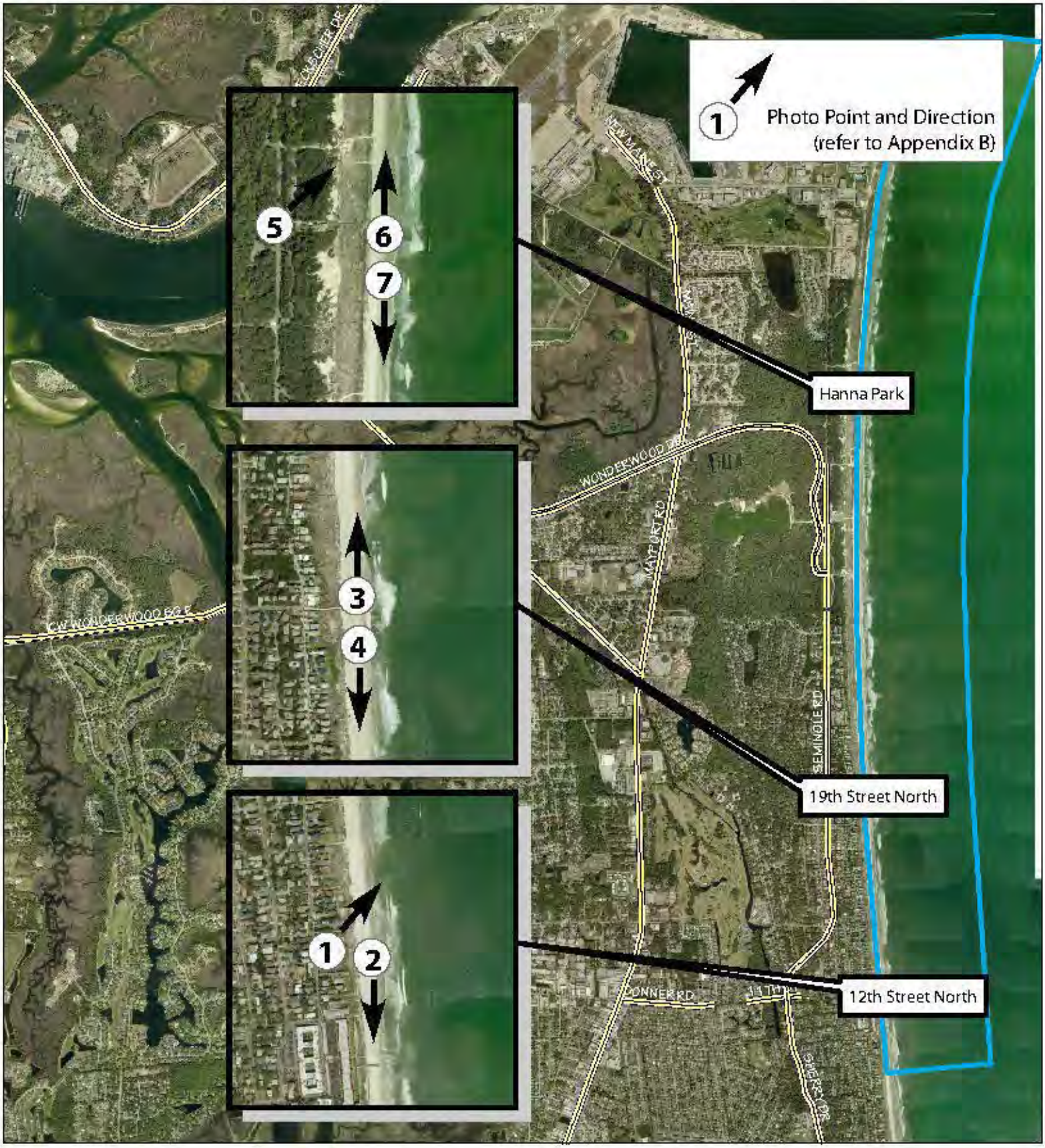
1" = 5,000 feet



Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Nearshore/Beach Placement Area

Figure 2

2011 Aerial Photograph
Duval County, Florida

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1" = 3,000 feet

Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Buck Island

Figure 3

2011 Aerial Photograph, Duval County, Florida

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1" = 400 feet

Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Reed Island
Figure 4
2011 Aerial Photograph, Duval County, Florida

1" = 500 feet

Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Lower Bartram Island

Figure 5

2011 Aerial Photograph, Duval County, Florida

1" = 500 feet

Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Middle Bartram Island

Figure 6

2011 Aerial Photograph, Duval County, Florida

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1" = 300 feet

Jacksonville Harbor Deepening Project

USFWS CAR

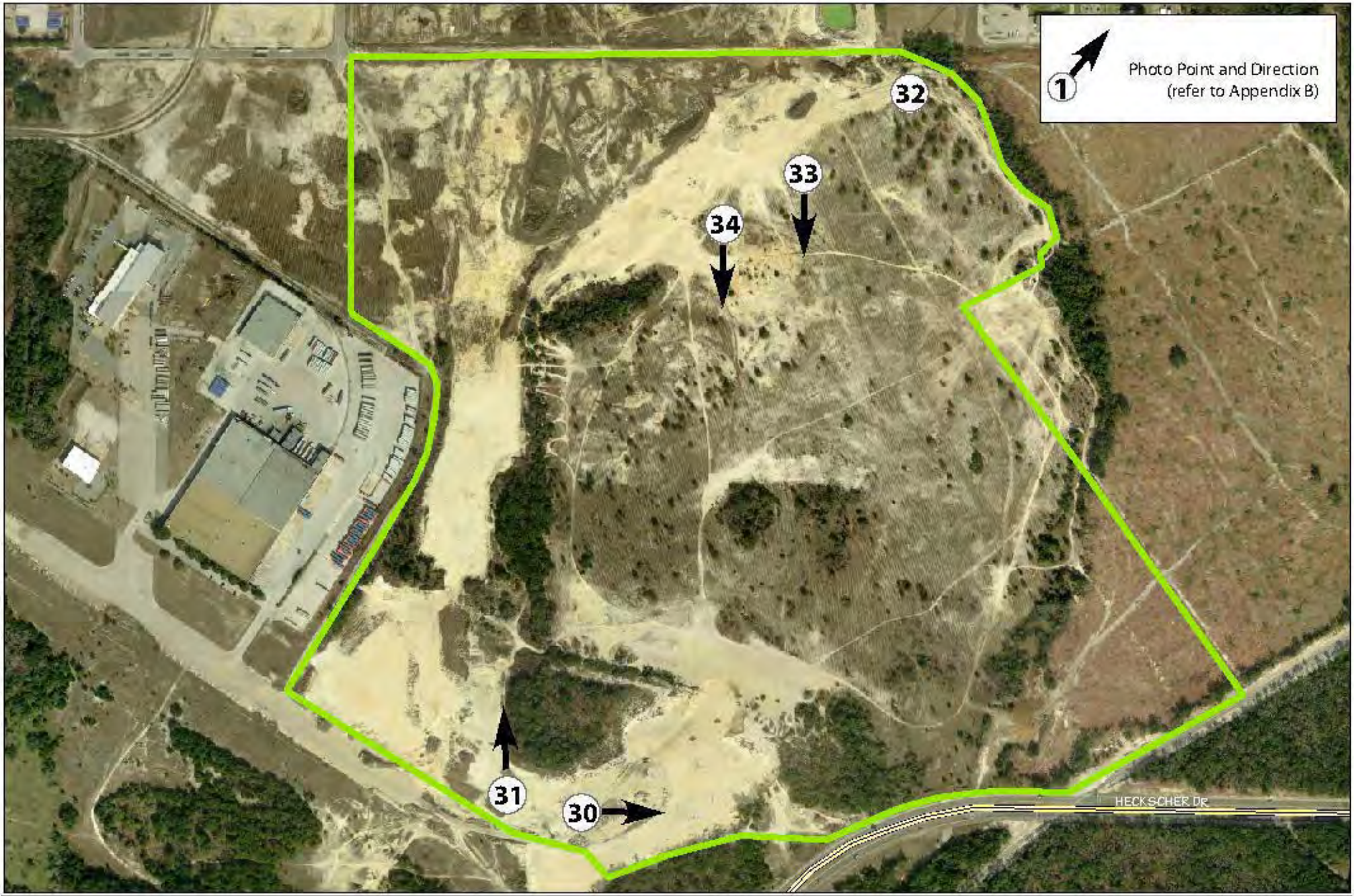
October 2011

Upper Bartram Island

Figure 7

2011 Aerial Photograph, Duval County, Florida

1" = 700 feet



Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Imeson Industrial Park

Figure 8

2011 Aerial Photograph, Duval County, Florida

1" = 500 feet

Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Imeson Industrial Park

Figure 9

2011 Aerial Photograph, Duval County, Florida

1" = 500 feet

Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Barnett Bank Trust Company
Figure 10

2011 Aerial Photograph Duval County, Florida

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1" = 500 feet

Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Barnett Bank Trust
Figure 11

2011 Aerial Photograph Duval County, Florida

N
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1" = 500 feet

Jacksonville Harbor Deepening Project

USFWS CAR

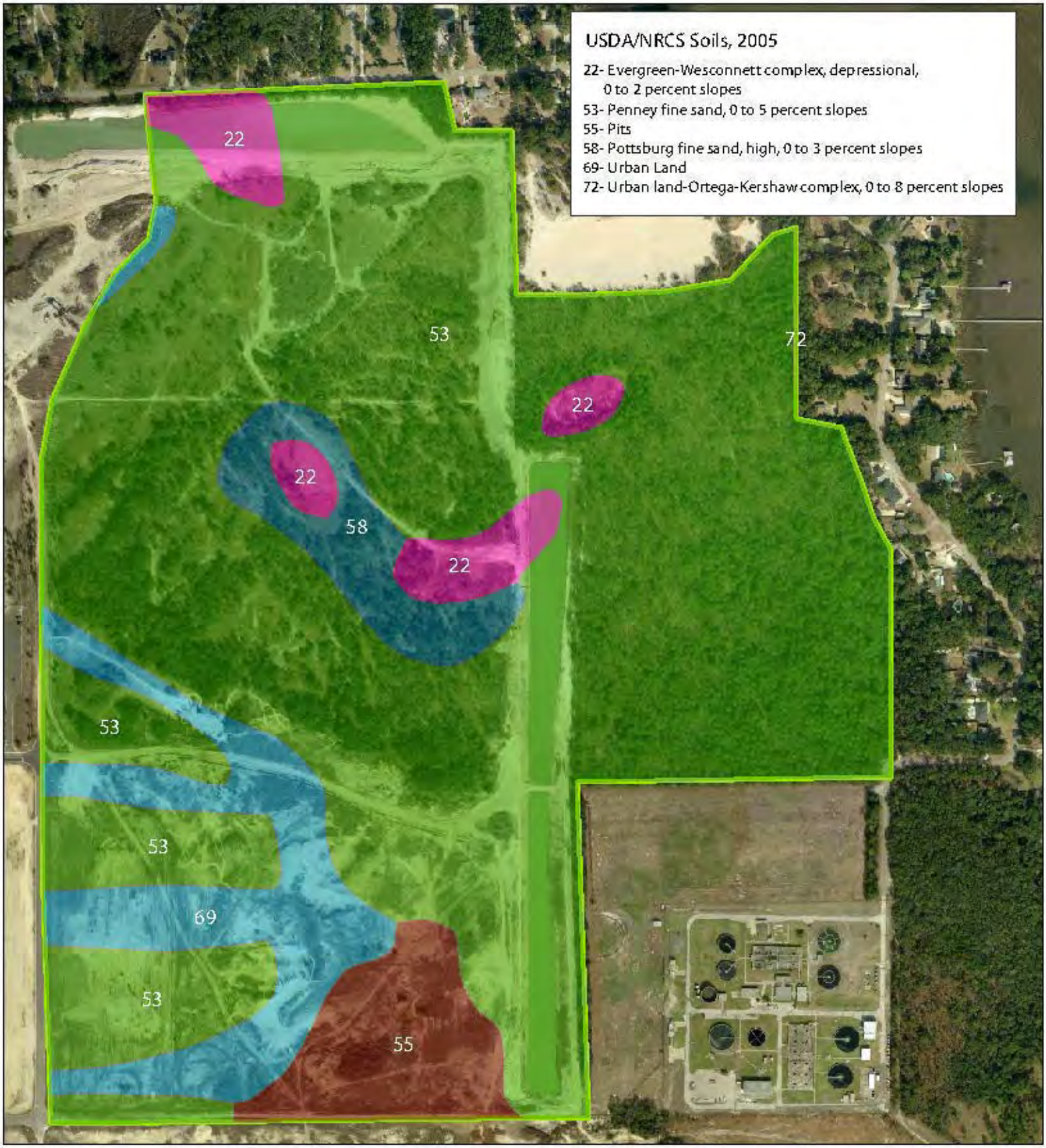
October 2011

Imeson-Cariss
Figure 12

2011 Aerial Photograph Duval County, Florida

N W E S

1" = 500 feet



Jacksonville Harbor Deepening Project

USFWS CAR

October 2011

Imeson-Cariss
Figure 13

2011 Aerial Photograph Duval County, Florida

N W E S

1" = 500 feet

Appendix B

Photographs

List of Photographs

Nearshore/Beach Placement Area

Photograph 1
Dune swale and back of fore dune; facing north

Photograph 2
Beach intertidal zone; facing south

Photograph 3
Upper beach area and foredune; facing north

Photograph 4
Beach intertidal zone; facing south

Photograph 5
Interdunal swale, rear dune at left; facing northeast

Photograph 6
Beach area near high tide; facing north

Photograph 7
Upper beach area and fore dune; facing south

Buck Island

Photograph 8
Dredge spoils; facing northeast

Photograph 9
Impoundment area; facing northwest

Photograph 10
Spoils and impoundment, facing south

Photograph 11
St. Johns Creek; facing southwest

Photograph 12
St. Johns Creek offsite; facing southeast

Reed Island

Photograph 13
Transmission lines and field; facing south-southeast

Photograph 14
Reed Island berm road; facing east-northeast

Photograph 15
Vegetation near culvert, west of north-south berm road; facing southwest

Photograph 16
Scrubby vegetation growing on old dredge spoil; facing southeast

Photograph 17
View of Reed Island from St. Johns River; facing east

Lower Bartram Island

Photograph 18
Shrubby vegetation growing on old dredge spoils; facing south

Photograph 19
Excavation of older dredge spoils; facing south-southeast

Photograph 20
Dredge spoil vegetated with pioneer weeds and small shrubs; facing west

Middle Bartram Island

Photograph 21
Pioneer vegetation growing on dredge spoils; facing west

Photograph 22
Berm and recent dredge spoils; facing south

Photograph 23
Recent dredge spoils; facing south

Upper Bartram Island

Photograph 24
Recent dredge spoil; facing west

Photograph 25
Pioneer vegetation growing on dredge spoil; facing southwest

Photograph 26
Recent dredge spoils and drawdown structure; facing west

Proposed Imeson Industrial Park Disposal Site

Photograph 27
Recent sand mining; facing east

Photograph 28
Recent sand mining; facing north

Photograph 29
Active gopher tortoise burrow

Photograph 30
Longleaf pine and volunteer herbs; facing south

Photograph 31
Active gopher tortoise and surrounding area; facing south

Photograph 32
Recently timbered area; facing northwest

Photograph 33
Recently timbered area; facing west

Photograph 34
Recently timbered area; facing southwest

Photograph 35
Mesic hammock; facing northeast towards shoreline

Photograph 36
Longleaf pine-dominated forest; facing northeast

Photograph 37
Recently timbered area; facing south

Photograph 38
Depressional area; facing west

Photograph 39
Access road and disturbed area; facing west

Photograph 40
Borrow pit and eastern project boundary; facing north

Photograph 41
Recent sand mining; facing northwest

Photograph 42
Mesic hammock, facing northwest

Photograph 43
Wet depression, facing north

Appendix C

Blasting Specifications

In the area where blasting could occur or any area where blasting is required to obtain channel design depth, the following marine mammal and turtle protection measures shall be employed, before, during and after each blast:

a. For each explosive charge placed, detonation will not occur if a marine mammal is known to be (or based on previous sightings, may be) within a circular area around the detonation site with the following radius:

r = 260 (W)^(1/3)

(260 times the cube root of the weight of the explosive charge in pounds)

where:

r = radius of the danger zone in feet.
W = weight of the explosive charge in pounds (tetryl or TNT).

The area described by the above equation shall be known as the danger zone.

b. A marine mammal watch will be conducted by no less than 2 qualified observers from a small watercraft, at least 1/2 hour before and after the time of each detonation, in a circular area at least three times the radius of the above described danger zone (this is called the watch zone).

c. Any marine mammal(s) in the danger zone or the watch zone shall not be forced to move out of those zones by human intervention. Detonation shall not occur until the animal(s) move(s) out of the danger zone on its own volition.

d. In the event a marine mammal or marine turtle is injured or killed during blasting, the Contractor shall immediately notify the Contracting Officer; the Florida Marine Patrol "Manatee Hotline" at

1-800-342-5367; as well as the U.S. Fish and Wildlife Service,
[Jacksonville Field Station at 904-232-2580 for North Florida]
[Vero Beach Field Office at 561-562-3909 for South Florida]
[Boqueron Field Office at 787-851-7273 for Puerto Rico]

Appendix D

Standard Manatee Construction Conditions

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK

July 2005

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

e. Any collision with or injury to a manatee shall be reported immediately to the FWC Hotline at 1-888-404-FWCC. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-232-2580) for north Florida or Vero Beach (1-561-562-3909) for south Florida.

f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Awareness signs that have already been approved for this use by the Florida Fish and Wildlife Conservation Commission (FWC) must be used. One sign measuring at least 3 ft. by 4 ft. which reads *Caution: Manatee Area* must be posted. A second sign measuring at least 81/2" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities.

CAUTION: MANATEE HABITAT

All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work all in-water activities must

SHUT DOWN

Report any collision or injury to:

1-888-404-FWCC (1-888-404-3922)

Florida Fish and Wildlife Conservation Commission